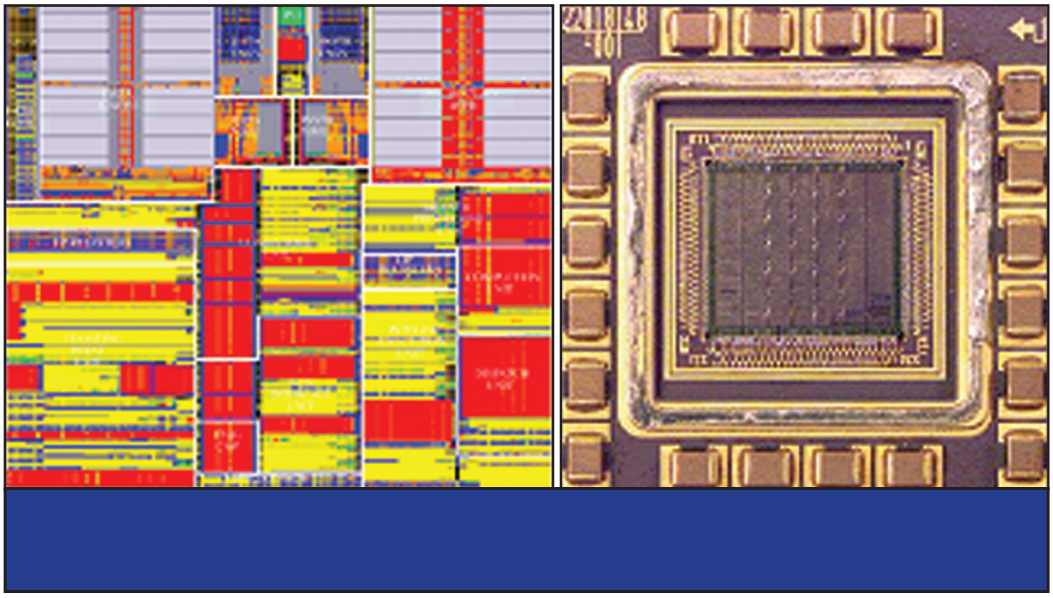
Air Force Research Laboratory | AFRL

Science and Technology for Tomorrow's Aerospace Forces

Success Story

POWERPC™ FOR SPACE



PowerPC™ microprocessors form the basis for space computers that use standard interfaces and run commercial software. The use of commercial standards and software makes application development much simpler and more affordable for satellite builders.

Air Force Research Laboratory
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Accomplishment

The Space Vehicles Directorate successfully completed the first fabrication runs on two radiation-hardened microprocessors that confirm the ability to run commercial PowerPC™ software. These microprocessors do much more computing with far less power than previous microprocessors, enabling smaller, cheaper, yet far more capable satellites.

Background

Two competing microprocessor programs successfully passed verification testing and preliminary environmental testing. The RHPPC™ from Honeywell Space Systems is a PowerPC™ 603e-compatible microprocessor fabricated on the Honeywell silicon-on-insulator process. This process yields an extremely hard device suitable for the most demanding radiation environments.

The RAD750™ is a PowerPC 750™ variant from BAE Systems. The company redesigned this device using harden-by-design techniques and fabricated it on a commercial fabrication line. This approach allows manufacturers to make more advanced chips at affordable costs, yet provides sufficient hardness for most military space requirements.

Space Vehicles
Emerging Technologies

Additional information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTT, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (01-VS-08)